EXECUTIVE SUMMARY

ES.1 INTRODUCTION

Six minimum control measures are required to be included in the SWMP, to satisfy the requirements of the NPDES Phase II program and CTDEP's General Permit for the Discharge of Stormwater from Small Municipal Storm Sewer Systems. Specific BMP's for each minimum control measure must be selected and incorporated into the plan, and eventually implemented as part of the department's stormwater management program.

This SWMP outlines a plan of BMP's and measurable goals for each of the six (6) minimum control measures including Public Education and Outreach, Public Involvement / Participation, Illicit Discharge Detection and Elimination, Construction Site Stormwater Runoff Control, Post Construction Stormwater Management and Pollution Prevention / Good Housekeeping. The plan requires that a combination of tasks be undertaken to carry out the BMP's selected for each measure. This includes documentation of policies, procedures and training, development of specific programs and products, conducting public information meetings, development of a storm sewer system map, outfall testing, development of new training and additional maintenance requirements.

The BMP's selected for each minimum control measure are summarized and briefly described in this section. Specific details for each BMP including measurable goals, implementation dates and positions responsible, are stated in each of the respective sections for each control measure in this plan. The Bureau Chief of the Bureau of Engineering and Highway Operations will be responsible for implementation and future enforcement of each of the BMP's for the six minimum control measures.

ES.2 PERMIT REQUIREMENTS AND IMPLEMENTATION DATES

Registration for the General Permit for the Discharges of Stormwater from Small Municipal Storm Sewer Systems must be submitted to the CTDEP by March 10, 2003 (Registration Date Postponed by CTDEP) while the SWMP associated with this general permit must be submitted by September 8, 2003 (Tentative Date). Complete implementation of the stormwater management program is required by the end of the first term of the general permit, typically five years after its issuance. Annual reports to the CTDEP are also required by the permit and must include information such as stormwater outfall testing, implementation and adequacy of selected BMP's and status of measurable goals.

ES.3 PUBLIC EDUCATION AND OUTREACH

This minimum control measure will outline a program to educate department employees and the public of the impacts of stormwater discharges on waterbodies, and inform them of the steps that can be taken to reduce stormwater pollution.

The following BMP's have been selected to address the Public Education and Outreach minimum control measure:

- Brochures / Fact Sheets
- Alternative Information Sources – Web Site, Brochures / Posters for bus and train stops, Public Service Announcements
- Library of Educational Materials
- Storm Drain Marking / Stenciling
- Tributary Signage

These BMP's will require the development and distribution of informational materials such as brochures / fact sheets, a web site, brochures and posters for bus and train stops and public service announcements. This broad range of materials is expected to reach a diverse audience covering a large geographic area, as well as targeting specific groups, with the use of slogans, graphics, and catchy phrases. Additionally, the BMP's will require that educational materials be collected and / or developed and maintained in the department's library for employee and public use.

Storm drain marking and stenciling products will be developed and evaluated by the department and made available to municipalities for implementation through town or community programs.

Tributary signage is already used by the department and will continue to be used in the future as part of the stormwater management program.

ES.4 PUBLIC INVOLVEMENT / PARTICIPATION

This minimum control measure will outline a program to ensure public support as well as provide community knowledge of pollution problems, by taking a proactive approach and encouraging department employees and the public to get personally involved with monitoring and improving the quality of the environment.

The following BMP's have been selected to address the Public Participation / Involvement minimum control measure:

- CTDOT NPDES Phase II Working Committee
- Public Information Meetings
- Brochure at Public Information Meetings
- Storm Drain Marking/Stenciling

A working committee was established, consisting of a diverse range of department disciplines, for the purposes of assisting in and participating in the development of the SWMP for the department. Meetings began in July of 2002 and continued on a regular basis through the completion of this plan.

Public information meetings were held in each of the department's four districts to educate and involve the public in the development of the SWMP. The meetings were held at the following locations and dates:

- **District 1**
  February 20, 2003 at 10:00 a.m.
  Connecticut Department of Transportation
  Conference A-B
  2800 Berlin Turnpike
  Newington, CT

- **District 2**
  February 18, 2003 at 10:00 a.m.
  Waterford Town Hall
  15 Rope Ferry Road
  Waterford, CT

- **District 3**
  February 27, 2003 at 10:00 a.m.
  Stratford Town Hall
  2nd Floor Council Chambers
  2725 Main Street
  Stratford, CT

- **District 4**
  February 25, 2003 at 10:00 a.m.
  Council of Governments of Central Naugatuck Valley
  Lombard Building, Room 300
  20 East Main Street
  Waterbury, CT

The public information meetings were conducted by the CTDOT along with the department's consultant for this assignment, Maguire Group Inc. The meetings were attended primarily by municipal representatives including public works directors, town engineers and town management from many towns within the districts. Employees of the regional planning agencies, as well as CTDOT employees and some environmental groups also attended.

A presentation outlining the department's draft stormwater management plan was given, followed by a comment period where individuals could discuss specific topics in detail. Information including presentation slides, the stormwater management plan executive summary and introduction, and a copy of the state contract for laboratory services was provided to all attendees. The attendees were informed that the CTDOT would make information and materials available in the future to aid in the development of their own stormwater management plans. Upon completion, a digital copy of the department's SWMP was provided upon request.

The selected BMP's will also require the development of a brochure to be displayed at construction and design public information meetings conducted by the department. The brochure will provide information on stormwater management and quality as it affects the environment.

The storm drain marking / stenciling program detailed in the Public Education and Outreach minimum control measure will be made available to municipalities. This will encourage public participation and involvement at the community level.

ES.5 ILLICIT DISCHARGE DETECTION AND ELIMINATION

This minimum control measure will outline a program that will detect and eliminate potential point sources of contaminants, leaking or discharging into storm sewer systems and ultimately to receiving waterbodies.

The following BMP's have been selected to address the Illicit Discharge Detection and Elimination minimum control measure:

- Department Policy Regarding Non-Stormwater Discharges
- Storm Sewer System Map
- Illicit Discharge Detection and Elimination Program
- Future Illicit Discharge Detection and Elimination

The department does not allow non-stormwater discharges into its storm sewer systems. This policy and guideline will continue as part of this plan.

The development of a storm sewer system map will be required to identify and locate department outfalls greater than or equal to 15" in diameter within urbanized areas and along all interstate highways. This will require the acquisition of aerial photogrammetry for base mapping and additional survey through GPS techniques to locate outfalls. Further maintenance and development of the mapping will be accomplished through the use of Geographical Information System (GIS) computer software.

The BMP's will also require the development of an illicit discharge detection and elimination program. The program will include testing sixteen (16) different outfalls each year. Each of the four (4) districts will test four (4) outfalls per year. One test will be performed for each of the established Average Daily Traffic (ADT) groups per district. The sampling based upon ADT classification will allow for different types of roadways and levels of traffic to be accounted for. This will ensure that all classifications of roadways will be sampled / monitored from arterials with 30,000 and under ADT of traffic to interstate roadways with over a 100,000 of ADT. Levels of pollution in stormwater runoff typically increase with increased volumes of traffic.

The department will continue to monitor its stormwater discharges in an effort to detect and address future non-stormwater discharges, and will coordinate with Municipal Separate Storm Sewer Systems (MS4), municipalities and other state agencies in identifying illegal discharge / dumping.

ES.6 CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

This minimum control measure will outline a program that will reduce pollutants in any stormwater runoff to MS4's from construction activities that result in a land disturbance of greater than or equal to one acre.

The following BMP's have been selected to address the Construction Site Runoff Control minimum control measure:

- Requirements and Guidelines for Erosion and Sediment Controls
- Procedures for Notifying Construction Site Developers and Operators of Requirements for Registration
- Requirements for Construction Site Operators to Implement Appropriate Erosion and Sediment Control Best Management Practices
- Requirements for Construction Site Operators to Control Waste at the Site
- Procedures for Site Plan Review
- Procedures for Receipt and Consideration of Information Submitted by the Public
- Procedures for Site Inspection and Enforcement of Control Measures

The department requires erosion and sediment controls and registration of permits for all state construction projects. The requirements associated with these items are detailed in several documents / publications developed by the department including the CTDOT Standard Specifications for Roads, Bridges, and Incidental Construction, Form 814A, the CTDOT Consultant Engineers Manual and the CTDOT Drainage Manual. Direct reference to the Connecticut Guidelines for Soil Erosion and Sediment Control is made in these documents to provide additional guidance and procedures to be utilized as it relates to this minimum control measure.

All projects with land disturbance of greater than or equal to one (1) acre associated with construction activities shall be registered under the General Permit for the Discharge of Stormwater and Dewatering Wastewaters Associated with Construction Activities with the CTDEP. Registration shall be submitted a minimum of thirty (30) days prior to the start of construction as required by the general permit

Construction site operators are required to implement appropriate erosion and sediment control best management practices as outlined in contract plans, contract specifications and standard specifications.

The operators are required to control the above mentioned waste by contract specifications, the department's standard specifications, Form 814A and all pertinent state and federal regulations.

Construction plans and specifications are reviewed for site runoff control by the department's Environmental Planning unit, for conformance to department, federal and state permit requirements.

Procedures for receipt and consideration of information submitted by the public are utilized by the department. Information submitted by the public is forwarded to the appropriate unit within the department for consideration. Information related to construction site runoff is forwarded to and considered by the Environmental Planning unit.

Site inspection and enforcement of control measures are utilized on all of the department's projects. Inspectors employed by the department are authorized to inspect all work performed and materials furnished for each project. The inspection may extend to all or any part of the work, and to the preparation or manufacture of the materials to be used including work and materials relating to construction site runoff control.

Additional inspection is also provided by the Environmental Planning unit and the District construction offices.

ES.7 POST CONSTRUCTION STORMWATER MANAGEMENT

This minimum control measure will outline a program that will address stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development, that discharge into small MS4's.

The following BMP's have been selected to address the Post Construction Site Runoff Control minimum control measure:

- Requirements for Structural and Non-Structural BMP's
- Procedures for Addressing Post Construction Runoff from Construction and Reconstruction Projects
- Ensuring Long Term Operation and Maintenance of Best Management Practices

The department will require structural and non-structural BMP's for projects disturbing greater than or equal to one (1) acre.

For drainage systems containing four to ten catch basins which discharge within fifty feet of a regulated area where applicable;

- Eliminate curbing, design for sheet flow and utilize natural vegetation to help filter particulates. On steep embankment slopes, erosion protection measures should be employed.

- Utilize oversized catch basins with four-foot deep sumps. It may be justified to provide six-foot sumps at the last two catch basins in the system if there are no conflicts with groundwater, ledge rock, rights-of-way or underground utilities. If end treatments such as hydrodynamic separators (gross particle separators) wet ponds or detention basins are constructed at the terminus of the drainage system, deep catch basin sumps can be eliminated. Additionally, sumps (any depth) should not be specified for any manholes or for catch basins on storm drainage systems which are 36 inches or greater in diameter.

At all locations where deep sumps are specified, the maximum depth of structure shall not exceed twelve feet as measured from the top-of-grate elevation.

- Utilize outlet protection such as riprap energy dissipators; scour holes, stone check dams erosion control matting and vegetative linings in outlet channels.

For drainage systems containing ten or more catch basins which discharge within fifty feet of a regulated area where applicable;

Outlet areas shall be designed so that an open channel with check dams, a sediment basin, or a combination of both is specified; these shall be designed to accommodate the peak runoff associated with the "first flush", known as Water Quality Flow (WQF). The last option is to specify a Hydrodynamic Separator also known as a Gross Particle Separator.

Studies related to the efficiency of these chambers with respect to storm water treatment are ongoing. Pending the publication and review of specific performance data, the following guidelines shall be applied**:**

- Hydrodynamic separators shall be designed to accommodate the peak runoff associated with the "first flush", known as the Water Quality Flow (WQF). The WQF shall be determined using the procedures outlined in Chapter 11, Appendix C of the Drainage Manual.

- Chambers shall be placed "off-line" and a bypass system shall be designed to convey the peak flow rate for the design storm.

- Hydrodynamic separators are best suited for the treatment of storm runoff from site drainage related to transportation facilities such as bus or train stations, maintenance garages, rest areas or commuter parking lots. Roadway applications should be limited primarily to urban areas.

The number of catch basins refers to the combined total of existing and proposed State maintained structures. The following items describe situations wherein catch basin inlets need not be included in the overall structure count:

- Inlets on town maintained systems or within private developments adjoining State highways which connect to the State system, as long as a distinct separation point (catch basin or manhole) exists or will be constructed at the junction of the two facilities. This will allow access for testing purposes should water quality issues arise at the discharge point of the State system.

- Catch basins located in grassed areas 20 feet or more from the

pavement edge.

- Ancillary catch basins that are internal to the drainage area and contribute no additional runoff to the storm sewer system such as flanker basins, basins intended to improve intersection drainage or inlets placed on steep grades to increase interception.

By issue of internal memorandum to all department units, stormwater management BMP's are required for all projects.

The department is divided into four maintenance districts across the state. Each maintenance district will be responsible for the long term operation and maintenance of the department's facilities in each of the respective districts.

ES.8 POLLUTION PREVENTION / GOOD HOUSEKEEPING

This minimum control measure will outline an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing stormwater pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and stormwater system maintenance.

The following BMP's have been selected to address the Pollution Prevention / Good Housekeeping minimum control measure:

- Operation and Maintenance Program
- Employee Training Program
- Street Sweeping Program
- Catch Basin Maintenance Program
- Preventative Maintenance Program

These BMP's will require the continuation of the department's operation and maintenance program.

Training will continue to be provided for the proper operation and maintenance of the department's facilities and roadways. Additional training will be developed to directly address stormwater management and this SWMP. Record keeping will continue to be performed and will be modified to incorporate additional information associated with the SWMP.

Sweeping of all roadways, parking lots and facilities will be performed at least once every year. Selected urbanized areas such as interstates and interchange zones will receive multiple sweeps per year based upon priority areas, where sediment/debris has been known to accumulate in higher quantities. The sweeping will be performed as soon as possible after snowmelt.

The department will attempt to annually clean at least one third (1/3) of their catch basins that have reached at least half of the capacity of the sump. These catch basins may be selected based upon routine scheduled field inspections and also inspections resulting from other program requirements. The department will conduct routine inspections by selecting a representative number of catch basins for each stretch of roadway, parking lot and facility, once every year. If a catch basin sump is found to be more than one half (1/2) full, the catch basin will be cleaned.

The department will continue to operate its preventative maintenance program and will incorporate all of the requirements of this general permit.

ES.9 ADDITIONAL REQUIREMENTS

The following topics are also required for compliance with the General Permit for the Discharge of Stormwater from Small Municipal Storm Sewer Systems. A detailed explanation of each of these requirements is located in Section 7 of this plan.

- Authorization Under this General Permit
- Proper Operation and Maintenance
- Availability of Information
- Keeping Plans Current
- Monitoring Requirements
- Reporting and Record Keeping
- General Discharge Requirements
- Total Maximum Daily Load (TMDL) Allocations
- Regulations of Connecticut State Agencies
- Duty to Correct and Report Violations
- Duty to Provide Information
- Correction of Inaccuracies
- Other Applicable Law